

| Phase (check one) | | Type (check one) | |
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| <input checked="" type="checkbox"/> | Initial Site Investigation | <input type="checkbox"/> | Work Scope |
| <input type="checkbox"/> | Corrective Action Feasibility Investigation | <input checked="" type="checkbox"/> | Technical Report |
| <input type="checkbox"/> | Corrective Action Plan | <input type="checkbox"/> | PCF Reimbursement Request |
| <input type="checkbox"/> | Corrective Action Summary Report | <input type="checkbox"/> | General Correspondence |
| <input type="checkbox"/> | Operations & Monitoring Report | <input type="checkbox"/> | |

A PHASE II HYDROGEOLOGIC INVESTIGATION
of
Goddard Transportation, Inc.
Route 4A
Castleton, Vermont
43° 36' 23" North Latitude, 73° 17' 16" West Longitude

KSKGeoS™ Project #: 99011
DEC Spill #: 98-2567
UST Facility ID #: 1840

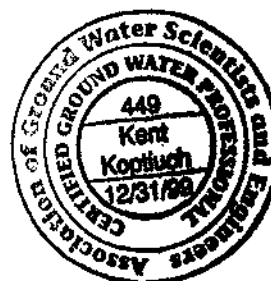
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KSKGeoS™

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EXECUTIVE SUMMARY

KENT S. KOPTIUCH, Inc. (KSKGeoS™), under the authorization of Mr. Reginald Goddard as requested by the VT DEC, conducted a Phase II hydrogeologic investigation of the Goddard's Transportation, Inc. facility located on Route 4A in Castleton, Vermont.

- KSKGeoS™ completed the installation, development, and sampling of three (3) groundwater monitoring wells. Each of the water samples was analyzed under EPA method 8021B for BTEX and MTBE (purgeable aromatics) and under EPA modified Method 8015 for total petroleum hydrocarbons (TPH).
- Groundwater exhibits a southwesterly flow direction across the site. Gradient is less than 1%. The rate of groundwater travel through the aquifer is approximately 1.63 gpd/ft².
- No separate-phase petroleum hydrocarbon products were observed during soil boring, well installation, or groundwater sampling activities.
- Based upon groundwater laboratory chemical analytical results, there does not appear to be any significant VOC contamination associated with the former fuel oil UST system. VOCs detected in ground water samples did not exceed Vermont Groundwater Preventative Action Limits.
- There is no evidence to indicate the presence of any immediate threat to human life, health, or safety at the site.
- No further investigative or monitoring measures are recommended to evaluate the former fuel oil UST system, however, KSKGeoS™ does recommend further investigation and evaluation of the floor drain system at the facility.

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1.0 INTRODUCTION

1.1 Authorization and Site Description

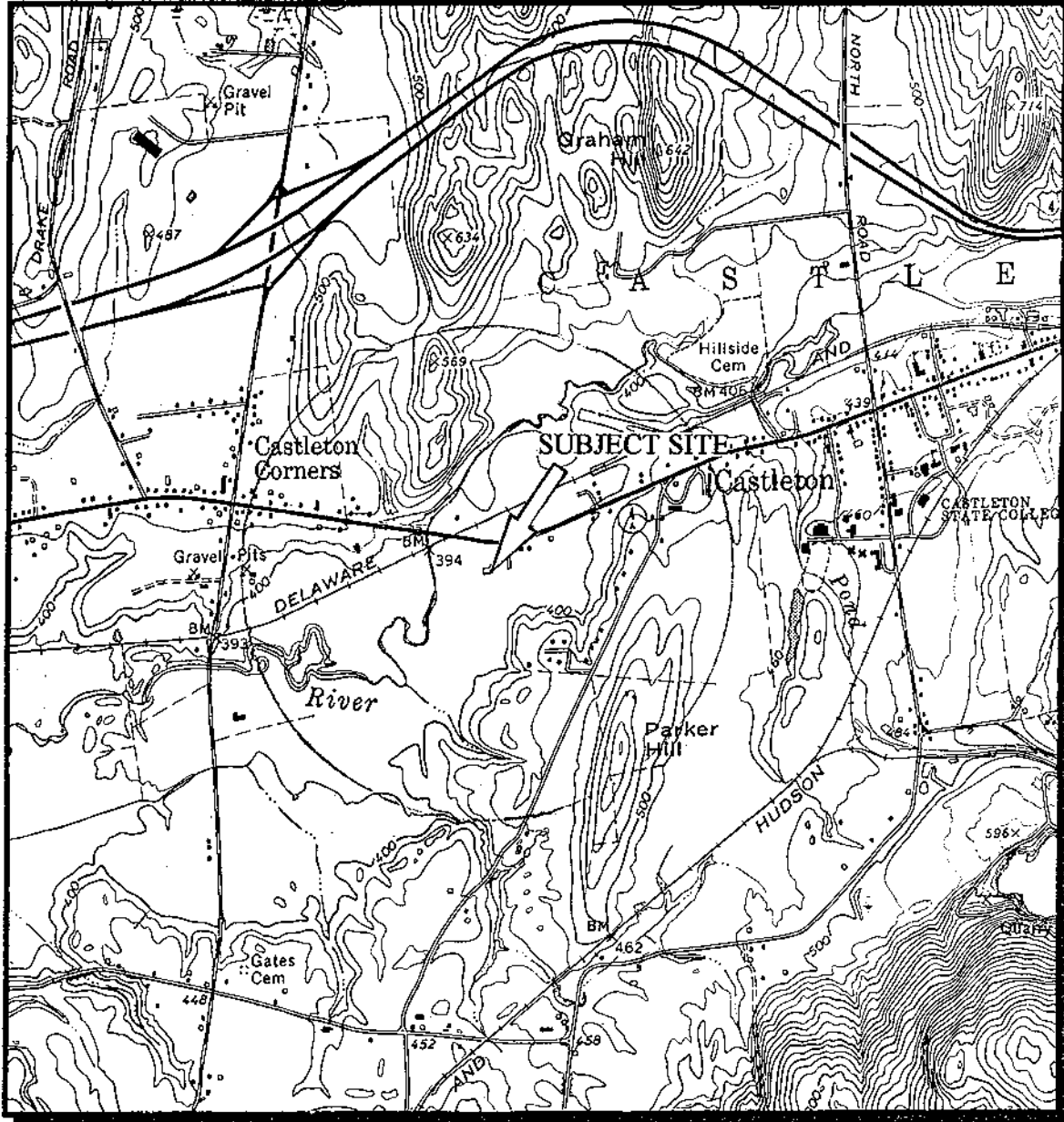
On April 23, 1999, KENT S. KOPTIUCH, Inc. Geo-Environmental Services (KSKGeoS™) was authorized by Mr. Reginald Goddard to conduct a phase II subsurface hydrogeologic investigation upon property he owns located on Route 4A in Castleton, Vermont. This property is referred to as Goddard's Transportation, Inc. (*the Site*). KSKGeoS™ investigation was performed in response to a Vermont Agency of Natural Resources (ANR) Department of Environmental Conservation (DEC) Waste Management Division's Sites Management Section (SMS) correspondence dated February 23, 1999. The VT ANR DEC SMS was notified of KSKGeoS™ intention to proceed with this investigation on April 28, 1999.

The site is located on the south side of Route 4A approximately 2/10 of a mile east of the intersection of Routes 30 and 4A in the village of Castleton, Vermont. Figure 1 is a *Site Location Map* depicting the facility's relative geographic location and its topographic setting. The lot size is approximately 3.5 acres ± and is primarily rectangular in shape.

The site is currently occupied by Goddard's Transportation, Inc. and is operated as a trucking company base for the transport of lime and lime slurry. Site operations at this facility include tank truck dispatch and storage, truck fueling and maintenance and exterior tank truck cleaning. The site includes a single story building that is utilized for maintenance of the tractor-trailers as well as for office space. The garage portion of this building also includes wash bays for rinsing trucks and tankers of residual calcium carbonate. A second garage is located along the northeast corner of the parcel, and is utilized for storage of maintenance equipment and overnight parking for some trucks. The area surrounding the site is comprised of mixed commercial, residential and farmland use. The site is generally flat. Due to the existence of calcium carbonate on much of the surface, particularly at the rear of the facility, most storm waters likely dissipate through evaporation. Excess waters are potentially absorbed through direct infiltration or surface drain by flow to the west and east at the front of the facility, and to the south at a swale and holding pond located at the rear of the property. The surface area of this site is primarily comprised of 'crush & run' gravel, but also includes concrete slabs utilized as wash pads for trailers and equipment, and a concrete slab around a fuel dispensary located to the east of the facility's main building. The tractors are fueled via a 12,000 gallon, concrete-bermed, above ground diesel fuel storage tank, located along the eastern side of the parcel. There is a fuel dispenser island with two pumps at the facility for the filling of delivery trucks. The facility is heated by #2 heating oil that is stored within two 330 gallon AST tanks located within the garage portion of the main facility building. Waste oil generated from maintenance of the tractors is stored in a 200 gallon AST also located within the garage portion of the main facility building. There are no longer any known underground storage tanks (USTs) on site.

This investigation was initiated following the closure by removal of one (1) #2 fuel oil UST completed in December of 1998 to address concerns of possible groundwater and/or soils impact at the site by petroleum hydrocarbons associated with this former UST system.

Figure 1
Site Location Map



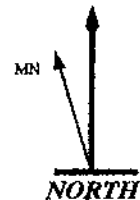
1 1/4 0 1 Mile

0 2,000 4,000 6,000 8,000 Feet

SCALE: 1" = 2,000 Feet

SOURCES:

Poultney Quadrangle, Vermont 7.5 Minute Series (Topographic) U.S.G.S. Reston, VA 1972 (photo revised)



1.2 Historical Background

According to Mr. Goddard, the site was initially developed specifically as a transportation entity for hauling lime (calcium carbonate) and was established in 1962. In 1989, five (5) USTs were closed by removal by Trombly Excavating of Rutland Vermont. The tanks closed included three (3) 4,000 gallon diesel, one (1) 4,000 gallon gasoline, and one (1) 1,000 gallon waste oil tank. The closure of these tanks was overseen by the Vermont DEC. According to a Phase I Environmental Assessment dated May 14, 1998, completed by WCM Group Inc. (WCM), of Humble Texas, conducted on behalf of Montgomery Tank Lines, Inc, who currently lease the property from Mr. Goddard, the VT ANR DEC issued a "no further action" determination following their on-site assessment of the closure. According to Mr. Goddard there was some follow-up investigation completed by the VT DEC after removal of these five tanks and involved the installation of three groundwater monitoring wells which were sampled twice over the course of one year after which the site was apparently closed, and the monitoring wells removed. A phase II investigation completed by WCM in June, 1998 evaluated subsurface conditions in the vicinity of the tank pit which formally contained the diesel and gasoline UST vessels; soil and water analysis associated with a single boring in this area did not yield the presence of BTEX constituents or TPH. The WCM phase II investigation also completed other borings to evaluate the outfall and surrounding subsurface associated with a small settling pit which receives rinse waters from the wash bay portion of the garage via underground pipeline. The results of soil samples obtained from three borings yielded concentrations of methylene chloride up to 8 ug/kg and acetone up to 590 ug/kg.

More recently, in December of 1998, Griffin International completed the closure assessment of a 4,000 gallon fuel oil UST located directly behind the main facility building. According to Mr. Goddard this fuel oil UST was utilized up until the fall of 1998. According to Griffin's December 20, 1998 report, soils adjacent to or underneath this UST were screened by PID and found to contain VOCs in concentrations up to 88 ppm. During the closure, groundwater was encountered at 4.0-feet below ground (bg); a petroleum type sheen was seen on the water table by Griffin personnel. Upon removal the UST was found to be in poor condition with severe rust and corrosion and with several holes noted. In a letter dated February 23, 1999, the VT DEC requested Goddard Transportation retain the services of an environmental consultant to complete a Phase II Hydrogeologic investigation as a result of the findings of the Griffin tank closure assessment.

1.3 Goals

KSKGeoS™ developed this investigation to meet the following goals:

- To assess the current environmental conditions in the overburden soils and in the unconsolidated groundwater aquifer by defining the extent and concentrations (if any) of separate-phase and/or dissolved-phase petroleum hydrocarbon product plume(s) potentially remnant from the fuel oil UST closed by removal in December, 1998.
- To identify and evaluate the impacts (if any) to identified potential receptors in the vicinity of the site As a result of this former fuel oil UST, and;
- To identify a potential remedial action program or future monitoring program suitable to address identified impacts (if any) revealed through the course of this investigation.

1.4 Scope of Work

KSKGeoS™'s scope of work on this site included the completion of the following tasks:

- A file search of Vermont Agency of Natural Resources Department of Environmental Conservation (DEC) records at the Waste Management Division's Sites Management Section in Waterbury, Vermont.

- Preparation of a site-specific health and safety plan (HASP) in accord with OSHA 29 CFR 1910.120.
- Field identification of potential receptors proximal to the site, including but not limited to: potable water supply sources, surface water bodies and waterways, sensitive environmental areas, basement and crawl-space air quality in on-site and adjacent buildings, and possible preferential subsurface migratory pathways.
- Completion with professional oversight of three (3) soil borings by hollow stem auger drilling methods with each of these borings finished as two (2) -inch diameter groundwater monitoring wells (MW-1, MW-2, and MW-3).
- Split-barreled (split spoon) sampling of the overburden soils during soil boring activities in accord with ASTM standard D1586. All samples were screened for VOCs, using jarred head-space methodology, with an H-Nu PI-101, 10.2 electron-volt (eV) lamp, photoionization detector (PID).
- Survey of groundwater monitoring well locations and elevations to an assumed datum of 100.00 -feet. Elevational accuracy is $\pm 0.01'$; spatial accuracy is $\pm 1.0'$.
- Gauging of groundwater elevations of all wells in the monitoring well network.
- Sampling of groundwater from wells MW-1, MW-2, and MW-3 under chain-of-custody protocol. Field blank samples were also secured.
- Laboratory chemical analysis of groundwater samples for benzene, toluene, ethylbenzene, and total xylenes (BTEX); methyl tert-butyl ether (MTBE); 1,3,5-trimethylbenzene; 1,2,4 trimethylbenzene; and naphthalene by EPA method 8021b.
- Laboratory chemical analysis of groundwater samples for total petroleum hydrocarbons (TPH) by modified EPA Method 8015.
- Data evaluation, interpretation, and mapping.
- Summary report preparation including all investigative results, documentation, interpretation, and findings and recommendations.

Figure 2 is a site map showing property layout, with groundwater monitoring well locations, and groundwater contours on May 11, 1999.

2.0 INVESTIGATIVE METHODOLOGY

2.1 Soil Boring & Groundwater Monitoring Well Installation

Boring and well installations at the site were completed on May 4, 1998. All monitoring well locations were selected by KSKGeoSTM supervising scientist, John Roman. Monitoring well locations were sited to best represent the overburden and groundwater conditions adjacent to and hydraulically down-gradient of the former fuel oil UST system removed in December, 1998. Soil borings and wells were completed by Tri-State Drilling & Boring of West Burke, Vermont under the direct supervision of Mr. Roman.

A Mobile, B-57, truck-mounted, drill rig, equipped with 4 $\frac{1}{4}$ " inside diameter (ID), hollow-stem augers was utilized for boring and well installations. The wells are constructed of two-inch (2") diameter, flush-threaded PVC screening and casing. Screening is factory slotted to 0.010' (an equivalent of 0.010 -feet of opening per running foot of screen); or, at locations where separate-phase petroleum might be encountered, monitoring wells were constructed using a screen slot of 0.020' (an equivalent of 0.020 -feet of opening per running foot of screen). The screened interval for each well was determined by the supervising scientist to extend at least five (5) -feet above and five (5) -feet below the groundwater table, where possible, to allow for seasonal fluctuations.

| SUMMARY TABLE 1: GROUNDWATER ELEVATIONS (in feet) - May 11, 1999 | | | | | | |
|--|-------|---------------|-------------------|----------------------|----------------|-----------------|
| WELL | GRADE | TOP-OF-CASING | SCREENED INTERVAL | DEPTH-TO-BOTTOM (BG) | DEPTH-TO-WATER | WATER ELEVATION |
| MW-1 | 99.43 | 98.91 | 86.88 - 96.88' | 12.55 | 3.85 | 95.06 |
| MW-2 | 99.71 | 99.47 | 87.47 - 97.47' | 11.28 | 4.00 | 95.47 |
| MW-3 | 99.35 | 99.04 | 87.04 - 97.04' | 10.75 | 3.53 | 95.51 |
| Pond | — | — | N/A | unknown | — | 97.69 |

Table 1 Notes:

- 1) Benchmark: Top of concrete floor at entrance to SE truck maintenance garage bay.

The annulus of each borehole was then filter-packed with washed, #1 Morie sand to a depth at least one (1) foot above the top of the screened interval. A one (1) -foot (or greater) hydrated bentonite seal was emplaced above the filter-pack. The remainder of the annular space was then backfilled with clean cuttings from each borehole. The top of each well casing was secured with a gripper-type cap. All three (3) wells were completed with flush-mounted, steel manholes set in concrete pads. Boring and well completion logs are included as **Attachment 1**.

Upon completion, each well was developed by hand through repetitive bailing. Well top-of-casing elevations were surveyed in on May 4, 1999 by Mr. Roman and Wayne Ault (Tri-State D & B) to an assumed datum of 100.00 -feet. The top of the concrete slab on the eastern rear garage bay door entrance of the maintenance garage was used as a benchmark.

2.2 Soil Sampling and Field Analysis

Soil boring samples were secured with a two-inch (2") outside diameter split-barreled sampler (split-spoon), advanced with the aid of a 140 -pound drop hammer, in conformance with ASTM Standard D-1586. Sampling was conducted at continuous intervals beginning at-grade for initial boring activities to characterize the soils and to establish the groundwater table elevation, and then, on average, at every 5.0 - foot interval.

Split-spoons were decontaminated after each sample was collected with a double-rinse, liquinox-clean water solution and clean water. All samples were classified by the supervising scientist using the Unified Soil Classification System.

Each soil sample was screened for the presence of VOCs by PID using bagged, head-space methodology. The PID employed was an H-Nu PI-101 with a 10.2 eV lamp. The unit was calibrated on-site for benzene in calibration gas equivalents (CGEs) of 100% isobutylene at 70 parts per million (ppm).

2.3 Groundwater Monitoring, Sampling, and Analysis

On May 11, 1998, an optical interface probe, capable of determining groundwater and separate-phase hydrocarbon petroleum product presence and thickness to within 0.01', was utilized to profile the elevations and the VOC characteristics of the overburden aquifer within each well. The probe was decontaminated between each well measurement following the method described in Section 2.2. Table 1 is a summary of groundwater elevations for the May 11, 1999 gauging event.

Water volumes were then calculated for each of the three (3) wells to be sampled, and the equivalent of three (3) well volumes were purged, by bailing, prior to sampling. Groundwater samples and a field blank were then secured under chain-of-custody protocol.

The sampling bailer was decontaminated between each well utilizing a liquinox-distilled water solution followed by a distilled water rinse. All samples were packed on ice and hand-delivered to Endyne, Inc. Laboratory Services (Endyne) in Williston, Vermont on the morning of May 12, 1999. Table 2 is a

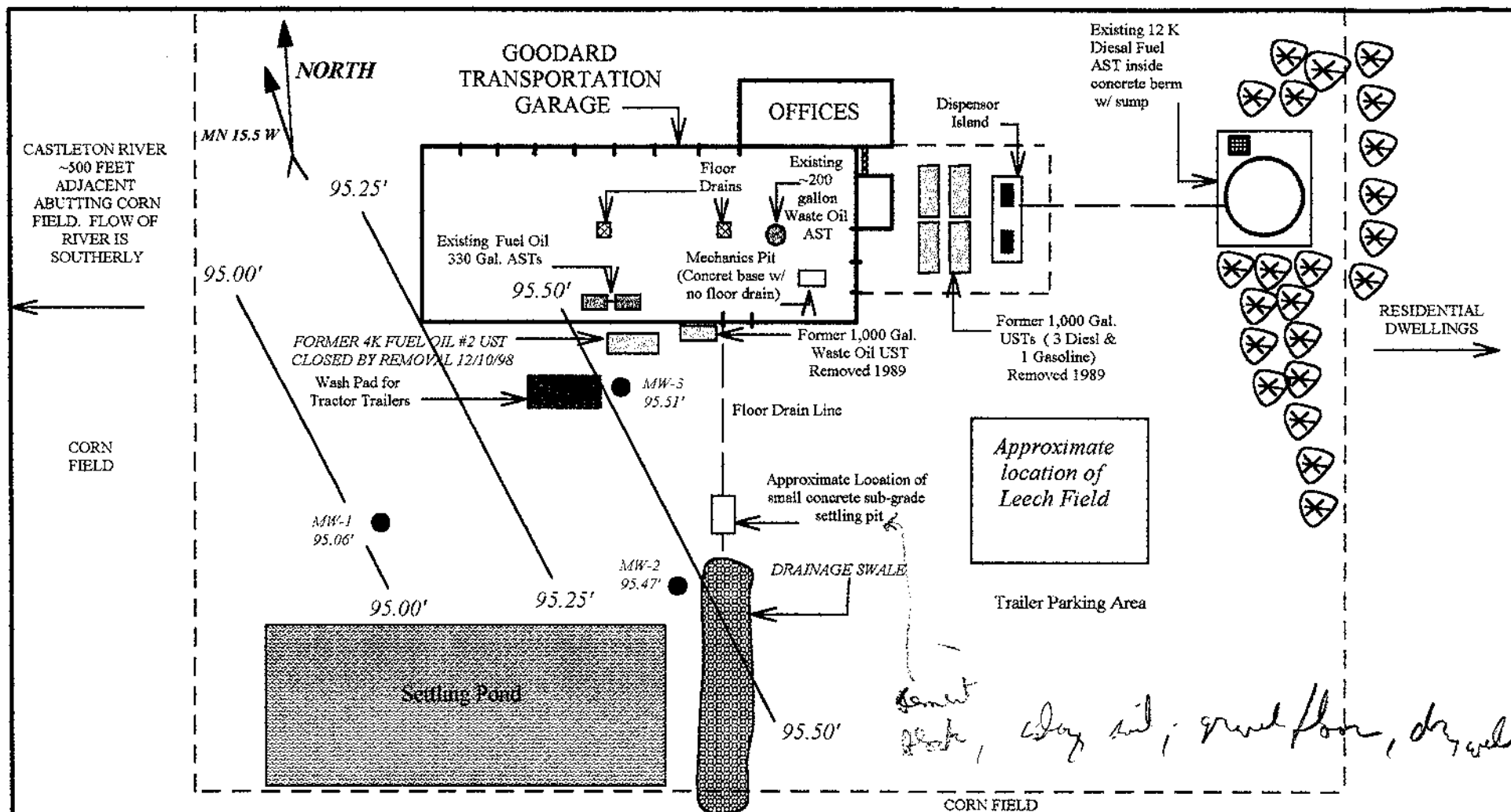


Figure 2

GROUNDWATER CONTOUR MAP

LABORATORY CHEMICAL ANALYTICAL RESULTS

MAY 11, 1999

(Concentrations in ug/L unless otherwise noted)

PROJECT DETAIL

KENT S. KOPTIUCH, Inc.
Geo-Environmental Services

164 Osgood Hill
Essex, Vermont 05452
802.878.1620

PROJECT: GODDARD TRANSPORTATION
PROJECT #: 99011
DEC SPILL #: 98-2567
LOCATION: CASTLETON, VT
DATE: 5/11/99
DRAWN BY: J.C. ROMAN
SCALE: 1" = 50'

| ANALYTE | MW-1 | MW-2 | MW-3 |
|-------------------------|-------|----------|----------|
| MTBE | <10.0 | <10.0 | <10.0 |
| BENZENE | <1.0 | <1.0 | <1.0 |
| TOLUENE | <1.0 | <1.0 | <1.0 |
| ETHYLBENZENE | <1.0 | TBQ <1.0 | TBQ <1.0 |
| XYLENES | <1.0 | TBQ <1.0 | TBQ <1.0 |
| 1,3,5 TRIMETHYL BENZENE | <1.0 | <1.0 | <1.0 |
| 1,2,4 TRIMETHYL BENZENE | <1.0 | 1.1 | TBQ <1.0 |
| NAPHTHALENE | <1.0 | TBQ <1.0 | TBQ <1.0 |
| TPH - DRO (mg/L) | <0.40 | 0.49 | <0.40 |

| SUMMARY TABLE 2 - 5/11/99 LABORATORY CHEMICAL ANALYTICAL RESULTS | | | | | | | | | | |
|--|--------------|-----------------|-----------------|---------------------------|-----------------|-----------------------|-------------------------------------|---------------------------------------|---------------------|-------------|
| WELL | MTBE µg/L | Benzene µg/L | Toluene µg/L | Ethyl- benzene µg/L | Xylenes µg/L | Total BTEX µg/L | 1,3,5 Tri- Methylbenzene µg/L | 1,2,4 Tri- Methylben- zene µg/L | Naphthalene µg/L | TPH mg/L |
| MW-1 | <10.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <1.0 | <0.40 |
| MW-2 | <10.0 | <1.0 | <1.0 | TBQ <1.0 | TBQ <1.0 | TBQ <2.0 | <1.0 | 1.1 | TBQ <1.0 | 0.49 |
| MW-3 | <10.0 | <1.0 | <1.0 | TBQ <1.0 | TBQ <1.0 | TBQ <2.0 | <1.0 | TBQ <1.0 | TBQ <1.0 | <0.40 |

Table 2 Notes:

- 1) Volatiles analyzed by EPA Method 8021B.
- 2) Total Petroleum Hydrocarbons (TPH) analyzed by modified EPA Method 8015 quantitated based upon the response of gasoline.
- 3) TBQ; Trace Below Quantitation Limit.

summary of the laboratory chemical analytical results for ground water samples obtained on May 11, 1999. The actual laboratory chemical analytical reports prepared by Endyne are included as Attachment 2.

Laboratory chemical analyses was completed by Endyne in accordance with EPA Method 8021B and with modified EPA method 8015. Method 8021B is utilized to identify benzene, toluene, ethylbenzene, and total xylene constituents (BTEX); 1,2,4 Tri-methylbenzene; 1,3,5 Tri-methylbenzene; Naphthalene; and Methyl-tert butyl ether (MTBE) in micrograms per liter (µg/L). The modified EPA Method 8015 is utilized for total petroleum hydrocarbon (TPH) concentrations in milligrams per liter (mg/L), and is quantitated to diesel range organics (DRO) which includes heating (#2) oil.

2.4 Potential Receptor Survey

A physical survey was conducted to identify potential receptors, including surface waterbodies, potable water sources, neighboring or on-site basements and/or crawl-spaces, sensitive environmental areas, and likely routes of subsurface conductance.

In addition, a review of the SMS' Vermont Hazardous Sites List was completed to identify any known spill sites in close proximity to the study site.

3.0 RESULTS

3.1 Geologic, Overburden Lithologic, Geomorphologic, and Hydrogeologic Summary

The site is located in the village of Castleton, Vermont in the Castleton River basin; the river is located approximately 500 feet to the west of the site. The site is situated at approximately 340-feet above mean sea level. The topography at the site is relatively flat; the apparent surficial drainage is to the east or west at the front of the site with a gradient of less than 1%, while drainage is to the south at a drainage swale and settling pond located upon the south or rear of the parcel. Overall regional surficial drainage is generally to the west and southwest towards the Castleton River. The Castleton River drains into Lake Champlain approximately five (5) miles west-southwest of the site.

According to the *Surficial Geologic Map of Vermont*, the site is situated at the juncture of three surficial deposits including recent alluvium (al) consisting of fluvial sands and gravel, kame terraced outwash gravel (kt), and littoral sediment sand (ls) consisting of well sorted sand with no pebbles or boulders. The borings completed for the installation of three monitoring well revealed the surficial material to consist primarily of sands and gravels with silt and silt-sand lenses and fines found below 9.0-feet BG.

unidentified
peaks
S
0
>10
>10

During drilling, groundwater was encountered between 4.60-feet BG through 5.30-feet BG. Bedrock was not encountered during this subsurface investigation. According to the *Bedrock Geologic Map of Vermont*, the underlying bedrock consists of Hatch Hill and/or West Castleton formations of the Middle Cambrian Taconic Range. The Hatch Hill formation is generally characterized as a thin, rusty and spongy weathered gray calcareous quartzite with white quartzite veins and succeeds the West Castleton formation. The West Castleton formation consists of a gray to black siliceous slate and contains pyrite. This formation ranges in thickness between 500 feet to 1000 feet according to the *Stratigraphy and Structure of a Portion of the Castleton Quadrangle, Vermont* (Zen, 1964).

Split-spoon samples from MW-1 revealed only trace levels (0.6 ppm) of VOC from a split-spoon soil sample obtained at 5.0-7.0-feet BG which also intersected the water table. The boring for MW-2 did not reveal VOCs by PID above background levels of 0.2 ppm through to boring completion depth of 12-feet BG. The boring completed for MW-3, placed adjacent and down gradient of the UST pit, yielded a peak concentration of 10.2 ppm from a split-spoon sample obtained for the 3.0 to 5.0-foot BG sample, which also intersected the ground water interface at approximately 4.6-feet BG. Additional soil samples obtained for the boring for MW-3 revealed decreasing levels of VOC with depth; soils at below 10.66-feet through end-of-boring at 14.0-feet were found to be at background levels of 0.2 ppm or non-detect.

3.2 Specific Hydrogeological Characteristics

Groundwater beneath the site was gauged at depths ranging from 3.84-feet BG through 4.37-feet BG on the May 11, 1999 sampling date. Groundwater flow direction is to the west-southwest across the study area with an approximate gradient of less than 1% (.00489) as determined between monitoring points MW-3 and MW-1. An approximate rate-of-travel (V_a) in the overburden aquifer was calculated through the application of Darcy's Law utilizing typical constants for horizontal hydraulic conductivity (K_H) and porosity (n) of the observed aquifer matrix (Driscoll, 1986):

$$V_a = \{[K_H (h_1 - h_2)] \div L\} \div n$$

where $(h_1 - h_2)$ is the difference in hydraulic head, and L is the distance along the flow-path for which the difference in hydraulic head is measured. When all known and assumed aquifer characteristics are entered into the above equation, the resulting rate-of-travel from MW-3 to MW-1 on May 11, 1999 is:

$$V_a = \{[100 \text{ gpd/ft}^2 (95.51' - 95.06')] \div 92'\} \div 30\% = 1.63 \text{ gpd/ft}^2$$

Table 1 is the groundwater elevation data calculated from the gauging of the monitoring well network on May 11, 1999. Figure 2 depicts groundwater contours of the overburden aquifer based upon this data.

3.3 Groundwater Laboratory Chemical Analytical Results

Actual laboratory chemical analytical results for all analytes are included as Attachment 2 of this report. Table 2 summarizes the results of these analyses. Samples were secured from the four (4) monitoring wells along with a field blank for quality control purposes.

- The groundwater sample secured from well MW-1 yielded no detectable VOC analytes above the method detection limits (MDLs) of 1.0 micrograms per liter ($\mu\text{g/L}$) for the EPA 8021B analysis. The total petroleum hydrocarbon (TPH) analysis did not yield a concentration above the 0.40 mL MDL for the modified EPA Method 8015 analysis.
- The groundwater sample secured from well MW-2 yielded a trace (TBQ) of ethylbenzene, xylenes and naphthalene below the MDL of 1.0 micrograms per liter ($\mu\text{g/L}$), and 1.1 $\mu\text{g/L}$ of 1,2,4 tri-methylbenzene. The total dissolved BTEX concentration was a TBQ <2.0 $\mu\text{g/L}$. The total petroleum hydrocarbon (TPH) concentration was 0.49 milligrams per liter (mg/L).

- The groundwater sample secured from MW-3 yielded a trace (TBQ) of ethylbenzene, xylenes 1,2,4 tri-methylbenzene and naphthalene below the MDL of 1.0 µg/L. The total petroleum hydrocarbon (TPH) analysis did not yield a concentration above the 0.40 m/L MDL for the modified EPA Method 8015 analysis.
- The field blank samples yielded no analyte concentrations above the MDLs.

3.4 Potential Environmental Concerns

3.4.1 Site Specific Concerns

General house-keeping practices involving the storage of truck/trailer maintenance fluids at the Goddard's, Inc. facility appear appropriate for the site; the facility is well-kept and both technicians and drivers are well-versed in fuel handling procedures, and in the containment and clean-up of minor surface spills, should they occur. Emergency spill kits, fire extinguishers, and first aid kits are situated at key locations within the facility. There is one mechanic's pit in the shop, however the floor of this pit is poured concrete with no floor drain. However, there are floor drains associated with the garage portion of the facility which apparently drain to a cinder block settling tank located directly north of a drainage swale behind the building (see Site Map). During WCM's Phase II investigation of this site in June 1998, three soil borings were placed adjacent to this "small pit". Analytical results of soil samples obtained from these borings as analyzed by EPA Methods 8260 and 8270C revealed the presence of methyl chloride at between 5.0 to 8.0 µg/kg, and acetone at concentrations of 240 µg/kg and 590 µg/L. All other target compounds for the EPA 8260 and 8270 analyses were found to be below detection limits. The swale that apparently accepts discharge from this pit was found to be dry during KSKGeoS™ visits to the site on May 5 and 11, 1999, with no indications of petroleum impact or stressed vegetation. The facility contains a septic and leechfield disposal system used for treatment of non-commercial wastes. This traditional disposal system is also located at the rear of the property and east of the discharge swale. The facility is serviced by a municipal water supply, as is the adjacent residential neighborhood which abuts the facility to the east. Electrical service at the site is overhead.

Along with the drainage swale, there is also a holding pond located behind the main facility. According to Mr. Goddard the holding pond was installed in 1992 and is not hydraulically connected with the surficial overburden aquifer. The pond holds wash-waters comprised of rinse water and calcium carbonate (lime) accumulated from trailer rinses. The surface area leading from this holding pond north to a concrete rinse platform, located directly behind the garage and approximately 20-feet southwest of the former location of the heating oil UST, is comprised gravel and sand solidified by calcium carbonate which has collected over the years. As such, any spills or rinse waters would likely dissipate by evaporation or drain into this impermeable holding pond. In its evaluation of the smaller pit, WCM noted in its report that the sludge of the smaller pit was transferred into the larger pond, however "from appearances, it is possible that the sludge is sometimes placed in a pile behind the pit area". KSKGeoS™ could not definitively distinguish any sludge piles existent at the site. Mr. Goddard did state the portion of the rear of the lot was built-up with fill materials.

The results of the field sampling and laboratory analysis of ground water samples secured to evaluate potential subsurface impact associated with the fuel oil tank removed in December 1998, did not reveal the presence of VOCs at concentrations above the Vermont Groundwater

enforcement standards VT DEC GES). The water sample from MW-2, located nearby the drainage swale and "small pit" revealed 1.1 µg/L of 1,2,4 tri-methylbenzene and TBQ levels of ethylbenzene, xylenes and naphthalene. The MW-2 ground water sample also revealed a concentration of 0.49 mg/L total petroleum hydrocarbons. In comparison, water samples obtained from MW-1 located directly down-gradient of the former fuel oil tank yielded TBQ levels of ethylbenzene, xylenes, naphthalene and 1,2,4 tri-methylbenzene. MW-1 ground water did not reveal detectable VOCs.

3.4.2 Surrounding Land Uses

Land uses on properties surrounding the site were noted as follows:

- North - (across Vermont Route 4A) Vacant farmland / riverine pasture / edge (Castleton River)
- East - combination residential and undeveloped
- South - farmland / cornfield
- West - farmland / cornfield with Castleton River approximately 500-feet west of site boundary

3.4.3 Potable Water Sources - 1 Mile Radius of Site

There are no identified public or private water supply sources within a one (1) -mile radius of the study site; the entire area is serviced by the Castleton Fire District Water Supply. The source for this water supply is a drilled well located on North Street in Castleton and serves 257 hook-ups including the residences adjacent to the Goddard's facility to the west. This water source dates back to the 1930s according to Mr. Richard Hall who manages this water supply. Mr. Hall also states that all residences to the east of Goddard's transportation are hooked up to this water supply and no other drilled wells, public or private are known to exist in this area.

3.4.4 Other Identified Sensitive Receptors - 1 Mile Radius of Site

Sensitive receptors within a one (1) -mile radius include soils, bedrock, and groundwater beneath and down-gradient of the site, the intermittent drainage swale situated at the site's southern (rear) margin, as well as the Castleton River.

3.4.5 Hazardous Sites Review/Identification

A review of the Vermont WMD *Hazardous Sites List* identified one (1) site within one (1) -mile of the study site. This one identified site is referred to as Prunier's Market and is located approximately 1-mile east of Goddard's Transportation also on the south side of Route 4A. Based upon the location of Prunier's market in relation to Castle River, it appears that there is little risk of contamination originating from Prunier's Market which would affect the subsurface beneath Goddard's Transportation. Three other Vermont WMD *Hazardous Sites* were also noted, and are located between 1.5 and 2 miles from Goddard's Transportation, and likely not at risk of impacting or influencing subsurface conditions at the Goddard's site. The list of identified hazardous sites is as follows:

| Site # | ID | Location | Town | Action | |
|--------|--------|-------------------------|-----------------------|-----------|----------------------------|
| 1) | 900620 | Hydeville Hutchins Fuel | Route 4A/ Main Street | Castleton | Monitoring Complete / SMAC |
| 2) | 941626 | Hutchin & White Fuels | Route 4A/ Main Street | Castleton | Quarterly GW Monitoring |
| 3) | 951863 | C T C Corp. | 515 Main / Route 4A | Castleton | LUST-montiroing on-going |
| 4) | 972225 | Prunier's Market | Route 4A | Castleton | LUST-Monitoring ongoing |

4.0 FINDINGS

KENT S. KOPTIUCH, Inc. Geo-Environmental Services' phase II subsurface investigation at the Goddard's Transportation Inc. property, located on Route 4A in Castleton, Vermont yielded the following results and findings:

- The overburden aquifer is comprised primarily of post-glacially, fluvially re-worked, gravelly-sands grading finer with depth to sandy-silts to silty-clays of marine depositional origin. The groundwater table was noted at depths ranging from 4.00 to 5.30 -feet below grade at the time of this investigation. Bedrock was not encountered.
- Groundwater flow conditions in the overburden aquifer exhibit a southwesterly flow direction across the site. Gradient exhibits less than 1% slope (0.00489) with a rate-of-travel through the overburden aquifer of approximately 1.63 gpd/ft².
- Soil sampling during boring activities revealed only trace VOC impact in MW-1 at depths of 5.0 -feet bg with a maximum concentration of 0.6 ppm. Laboratory chemical analytical results of the groundwater samples secured from monitoring well MW-1 yielded no detectable analyte concentrations. This well is the furthest hydraulically down-gradient and is situated nearest the property boundary.
- Soil sampling during boring activities revealed trace VOC impact in MW-2 at the 3.0 to 5.0 -foot depth with a concentration of 0.2 ppm. Laboratory chemical analytical results (EPA 8021b) of the groundwater sample from MW-2 yielded no detectable analyte concentrations above the Groundwater Enforcement Standards (GES), or the Preventive Action Standards (PES). Ground water analysis by modified EPA 8015 yielded 0.49 mg/L total petroleum hydrocarbons.
- Soil sampling during boring activities revealed VOC impact in MW-3 beginning at just below ground surface at 6.4 ppm ranging to a maximum concentration of 10.2 ppm encountered at 3.0 to 5.0-feet bg, with the ground water interface approximated at 4.6-feet bg. VOC concentrations at between 5.0 and 7.0 feet bg were recorded to be 8.2 ppm, while additional samples obtained below this depth revealed diminishing levels, with non-detect results encountered at 11.0 feet bg through boring terminus at 14.0-feet bg. Laboratory chemical analytical results of the groundwater sample from MW-3 yielded yielded a trace (TBQ) of ethylbenzene, xylenes, 1,2,4 tri-methylbenzene, and naphthalene below the MDL of 1.0 µg/L. The total petroleum hydrocarbon (TPH) analysis did not yield a concentration above the 0.40 m/L MDL for the modified EPA Method 8015 analysis.
- A review of the VT DEC Hazardous Sites List yielded four (4) other identified spill sites within Castleton, only one (1) of these identified site is within 1 (one) -mile radius of the study site. None of these other sites appear to exhibit any hydraulic influence or risk upon the Goddard's, Inc. site.
- This facility includes a floor drain system that is apparently tied to a small sub-grade concrete pit; this drains into a swale located at the rear of the parcel. The contents entering the floor drains of this system consists primarily of wash waters from the tractor and trailer wash bays inside the facility, and periodic floor rinse. Subsurface borings completed by another environmental consultant in June 1998 in the area around this smaller pit revealed low levels of acetone and methylene chloride in soil samples analyzed by EPA 8270. During this investigation, the boring for MW-2, placed in this area to evaluate the potential contamination from the fuel oil UST, did not reveal VOC levels by PID above 0.2 ppm, or, reveal constituents above VT GES or VT PAL in ground water samples as laboratory analyzed by EPA 8021b.
- The results of this investigation indicate that any past or present impact from the former 2,000 gallon fuel oil UST system, removed in December, 1998 do not pose any immediate threat to human health, life, or safety.

5.0 RECOMMENDATIONS

Based upon the findings of this subsurface investigation, KSKGeoS™ offers the following recommendations regarding future monitoring and/or remedial options for the Goddard's Transportation, Inc. property in Castleton:

- As the results of laboratory analysis of ground water samples did not reveal concentrations of VOC that exceed Vermont ANR DEC Preventative Action Limits, this site is recommended for SMAC designation with regard to the 2,000 gallon fuel oil UST closed by removal during December 1998.
- With regard to the floor drain system, further evaluation is necessary to determine it's effectiveness in preventing potential harmful contaminants from being discharged to the environment. This evaluation was not part of our contracted work scope, nor was it requested by the Vermont ANR DEC.

6.0 LIMITATIONS

This report is based upon limited physical investigation of the site and vicinity, samples from a fixed number of groundwater monitoring wells and sampling points, laboratory chemical analyses, and research of materials and files available at the time of the investigation. The findings presented in this report are based only on the observations drawn during this investigation, and upon data provided by others. This report presents a description of the subsurface conditions, in the overburden lithology at each sampling and/or well location, that were prevalent at the time of KSKGeoS™ investigation.

Subsurface conditions can vary significantly over time, particularly with respect to groundwater elevations and groundwater and soil quality. Findings and recommendations presented in this document are applicable only to the facts and conditions described at the time of this investigation.

In performing its professional services, KSKGeoS™ employs the degree of care and skill exercised under similar circumstances by members of the environmental profession practicing in the same or similar locality under similar conditions. The standard of care shall be judged exclusively as of the time these services are rendered, and not according to later standards. KSKGeoS™ makes no express or implied warranty beyond its conformance to this standard.

KSKGeoS™ shall not be responsible for conditions or consequences arising from relevant facts that were concealed, withheld, or not fully disclosed for the preparation of this document. KSKGeoS™ believes that all information contained in this document is factual, but no guarantee is made or implied.

7.0 REFERENCES

- Department of Environmental Conservation, **Chapter 12 - Groundwater Protection Rule and Strategy**, Vermont Agency of Natural Resources, Rule #97-P14, effective November 15, 1997.
- Driscoll, Fletcher G., Ph.D., **Groundwater and Wells, 2nd ed.**, Johnson Division, St. Paul, MN., 1986.
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- WCM Group Incorporated, **Phase I Site Assessment: Goddard Transportation**, WCM Group, Inc. Humble TX June 12, 1998
- Wells, Steven K. , **Phase II Letter Report**, WCM Group Incorporated, Humble TX August 21, 1998.
- Zen, E-an, **Stratigraphy and Structure of a Portion of the Castleton Quadrangle, Vermont**, Vermont Geological Survey and Vermont Development Department, Montpelier, VT Bulletin No. 25, 1964

Attachment 1

Soil Boring and Well Completion Logs



KENT S. KOPTIUCH, INC.
 Geo-Environmental Services
 164 OSGOOD HILL - ESSEX, VERMONT 05452
 TELE/FAX (802) 878-1620

WELL LOG MW -1 (Page 1 of 2)
 INSTALLED: May 4, 1999
 LOGGED BY: JOHN C. ROMAN
 ENVIRONMENTAL SCIENTIST

PROJECT # 99011

GODDARD TRANSPORTATION, INC.

DRILLING COMPANY

TRI-STATE DRILLING

DRILL RIG:

MOBILE B-57, 4 1/4" ID HSA

SAMPLING METHOD:

SPLIT-SPOON & GRAB

BENTONITE WELL SEAL
 CONCRETE SURFACE SEAL

NATIVE BACKFILL

#1 MORIE SAND PACK

CASING: 2" DIAM, FLUSH-THREADED PVC
 SCREEN: 2" DIAM, FLUSH-THREADED, 0.10" SLOT PVC
 SCREENED INTERVAL: 86.88' TO 96.88'

| DEPTH (ft) | CONSTRUCTION | SAMPLE # | BLOWS/ft | RECOV | VOCs in ppm | SOILS/LITHOLOGY | COMMENTS |
|-----------------|--------------|----------------|----------|-------|-------------|---|----------------|
| | | | | | | | GRADE @ 99.43' |
| 0.0 | | | | | | | TOC @ 98.91' |
| 0.0 - 0.5' | | GRAB | | | 0.0 | DRY, COARSE & MED SAND W/ LIME AND FINE PEA GRAVEL | |
| 0.5' - 2.0' | | | | | 0.0 | DRY, LIGHT BROWN SAND AND SOME FINE SAND, TRACE FINE GRAVEL | |
| 2.0' - 3.0' | | | | | 0.0 | DRY, DARK BROWN SAND W/ SOME FINE SAND. | |
| 3.0' - 3.83' | | SS-1 (3-5') | 3-5-3-3 | 0.83' | 0.0 | MOIST, BROWN MED SAND, MANY MED GRAVEL, SOME SILT, FEW DISTINCT ORANGE BROWN MOTTLES. | |
| 5.0' - 5.25' | | SS-2 (5-7') | 3-2-1-3 | 0.66' | 0.6 | SATURATED LIGHT GRAY CRS SAND W/ FINE AND MEDIUM GRAVEL | |
| 5.25' - 5.66' | | | | | | SATURATED DARK BROWN SAND AND FINE SAND, SOME SILT, LITTLE FINE GRAVEL | WT @ 5.33 |
| 7.0' - 7.25' | | SS-3 (7-9') | 6-5-5-6 | 1.08' | 0.2 | WET GRAY FINE AND MEDIUM SAND, SOME SILT AND CRS SAND FRAGMENTS, LOOSE, SLIGHTLY STICKY | |
| 7.25' - 7.50' | | | | | | VERY MOIST FINE AND MED BROWN SAND W/ SILT AND FINE TO MED GRAVEL | |
| 7.50' - 8.03' | | | | | | SATURATED FINE TO MED GRAVEL W/ CRS & MED GRAY SAND, TRACE SILT | |
| 9.0' - 9.25' | | SS-4 (9.0-11') | 2-3-2-3 | 1.0' | 0.4 | SATURATED OLIVE-GRAY SAND W/ CRS & V CRS SAND, TRACE SILT | |
| 9.25' - 10.0' | | | | | | SATURATED, BROWN TO RED-BROWN SAND W/ GRAY CRS SAND AND FINE ANGULAR GRAVEL, LOOSE | |
| 11.0' - 11.58' | | SS-5 (11-13') | 3-3-3-3 | 1.0' | 0.2 | WET, SAND AND FINE GRAY SAND, UNIFORM, LOOSE | |
| 11.58' - 12.00' | | | | | | WET MED AND FINE SAND W/ MED ROUNDED GRAVEL, OVER MOIST SILT & VF SAND, TRACE GRAVEL | |



KENT S. KOPTIUCH, INC.
 Geo-Environmental Services
 164 OSGOOD HILL • ESSEX, VERMONT 05452
 TELE/FAX (802) 878-1620

WELL LOG MW -1 (Page 2 of 2)
 INSTALLED: May 4, 1999
 LOGGED BY: JOHN C. ROMAN
 ENVIRONMENTAL SCIENTIST

PROJECT # 99011

GODDARD TRANSPORTATION, INC.

DRILLING COMPANY

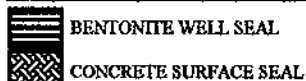
TRI-STATE DRILLING

DRILL RIG:

MOBILE B-57, 4 1/4 ID HSA

SAMPLING METHOD:

SPLIT-SPOON & GRAB



NATIVE BACKFILL

#1 MORIE SAND PACK

CASING: 2" DIAM, FLUSH-THREADED PVC
 SCREEN: 2" DIAM, FLUSH-THREADED, 0.10" SLOT PVC
 SCREENED INTERVAL: 86.88' TO 96.88'

| DEPTH (ft) | CONSTRUCTION | SAMPLE # | BLOWS/ft | RECOV | VOCs in ppm | SOILS/LITHOLOGY | COMMENTS |
|------------|--------------|---------------|----------|-------|-------------|---|------------------|
| 12.0 | | SS-6 (12-14') | 6-9-42 | 1.16' | 0.2 | WET, FINE TO CRS GRAY SAND, TRACE OF SILT | 12.00' - 13.16' |
| 13.0 | | | | | | | SET WELL @ 12.6' |
| 14.0 | | | | | | | E.O.B. 14.0' |
| 3.0 | | | | | | | |
| 4.0 | | | | | | | |
| 5.0 | | | | | | | |
| 6.0 | | | | | | | |
| 7.0 | | | | | | | |
| 8.0 | | | | | | | |
| 9.0 | | | | | | | |
| 10.0 | | | | | | | |
| 11.0 | | | | | | | |
| 12.0 | | | | | | | |



KENT S. KOPTIUCH, INC.
 Geo-Environmental Services
 164 OSGOOD HILL • ESSEX, VERMONT 05452
 TELE/FAX (802) 878-1620

WELL LOG MW -2
 INSTALLED: MAY 4, 1999
 LOGGED BY: JOHN C. ROMAN
 ENVIRONMENTAL SCIENTIST

PROJECT # 98011
 GODDARD TRANSPORTATION, INC.

DRILLING COMPANY
 TRI-STATE DRILLING

DRILL RIG:
 MOBILE B-57, 4 1/4 ID HSA

SAMPLING METHOD:
 SPLIT-SPOON & GRAB

BENTONITE WELL SEAL
 CONCRETE SURFACE SEAL

NATIVE BACKFILL

#1 MORIE SAND PACK

CASING: 2" DIAM., FLUSH-THREADED PVC
 SCREEN: 2" DIAM., FLUSH-THREADED, 0.10" SLOT PVC
 SCREENED INTERVAL: 87.47' TO 97.47'

| DEPTH (ft) | CONSTRUCTION | SAMPLE # | BLOWS/ft | RECOVERY | VOCs in ppm | SOILS/LITHOLOGY | COMMENTS |
|------------|--------------|--------------|-----------|----------|-------------|---|-----------------|
| 0.0 | | | | | | | GRADE @ 99.71' |
| | | | | | | | TOC @ 99.47' |
| 0.0 | | GRAB | | | 0.0 | DRY, ANGULAR ED GRAVEL W/ LIME & SAND | 0.0' - 0.50' |
| 0.50 | | | | | | MOIST, MED BROWN SAND W/ CRS SAND & FN GRAVEL | 0.50' - 2.0' |
| 3.0 | | SS-1 (3-5') | 12-2-1-10 | 1.16' | 0.2 | MOIST, OLIVE VF TO FN SAND, SOME SILT, MOSTLY LOOSE | 3.0' - 3.5' |
| 3.5 | | | | | | V. MOIST GRAY SAND W/ SILT | 3.5' - 4.0' |
| 4.0 | | | | | | VERY MOIST COARSE GRAY-BROWN SAND W/ FN GRAVEL | 4.0' - 4.16' |
| 5.0 | | SS-2 (5-7') | 5-12-8-6 | 1.08' | 0.0 | WET, OLIVE-GRAY CRS SAND W/ FN & VF SAND W/ SILT, | 5.0' - 6.08' |
| | | | | | | FEW MED TO CRS ANGULAR & ROUNDED GRAVEL | |
| 9.0 | | SS-3 (9-11') | 1-1-2-9 | 1.66' | 0.0 | SATURATED, OLIVE-BROWN SILT W/ VF SAND, STICKY | 9.0' - 10.25' |
| 10.25 | | | | | | SATURATED, OLIVE-GRAY SAND, UNIFORM, SLIGHT STICKY | 10.25' - 10.66' |
| 12.0 | | | | | | E.O.B. 12.0' / SET WELL @ 12.0' | |



KENT S. KOPTUCH, INC.
 Geo-Environmental Services
 164 OSGOOD HILL • ESSEX, VERMONT 05452
 TELE/FAX (802) 878-1620

WELL LOG MW-3

INSTALLED: MAY 4, 1999
 LOGGED BY: JOHN C. ROMAN
 ENVIRONMENTAL SCIENTIST

PROJECT # 99011
 GODDARD TRANSPORTATION, INC.

DRILLING COMPANY
 TRI-STATE DRILLING

DRILL RIG:
 MOBILE B-57, 4 1/4 ID HSA

SAMPLING METHOD:
 SPLIT-SPOON & GRAB

BENTONITE WELL SEAL
 NATIVE BACKFILL
 #1 MORIE SAND PACK
 CONCRETE SURFACE SEAL

CASING: 2" DIAM, FLUSH-THREADED PVC
 SCREEN: 2" DIAM, FLUSH-THREADED, 0.20" SLOT PVC
 SCREENED INTERVAL: 87.04' TO 97.04'

| DEPTH (ft) | CONSTRUCTION | SAMPLE # | BLOWS/ft | RECOVERY | VOCs in ppm | SOILS/LITHOLOGY | COMMENTS |
|------------|--------------|---------------|----------|----------|-------------|---|------------------|
| 0.0 | | | | | | | GRADE @ 99.35' |
| | | | | | | | TOC @ 99.04' |
| | | GRAB | | | 6.4 | DRY, GRAY-WHITE MED GRAVEL & LIME | 0.0' - 0.66' |
| -1.0 | | GRAB | | | 8.2 | DRY, OLIVE-GRAY SAND, SOME GRAVEL, TRC SILT | 1.0' - 3.0' |
| -2.0 | | | | | | | |
| -3.0 | | SS-1 (3-5') | 1-4-8-5 | 1.58 | 10.2 | MOIST, OLIVE-GRAY SILT W/ FN SAND. | 3.0' - 3.83' |
| -4.0 | | | | | | V. MOIST GRAY COARSE SAND, SM FN GRAVEL, TRC SILT | 3.83' - 4.23' |
| | | | | | | WET, GRAY SAND, SM FN GRAVEL & SILT-SAND | 4.23' - 4.58' |
| | | | | | | | WT @ 4.6' |
| -5.0 | | SS-2 (5-7') | 3-5-8-10 | 1.0 | 8.2 | SATURATED, GRAY CRS & V CRS SAND AND ANG GRAVEL | 5.0' - 5.5' |
| -6.0 | | | | | | WET, V. CRS BROWN-GRAY SAND W/ FN & MED GRAV, & SLT | 5.5' - 6.0' |
| -7.0 | | | | | | | |
| -8.0 | | SS-3 (8-10') | 4-2-3-1 | 1.0' | 1.2 | WET, BROWN V. CRS SAND W/ MED & FN SAND | 8.0' - 8.66' |
| -9.0 | | | | | | WET, OLIVE-BROWN FN TO VF SAND W/ SILT | 8.66' - 9.0' |
| -10.0 | | SS-4 (10-12') | 2-1-1-3 | 2.0' | 0.8 | WET, OLIVE TO GREY-BROWN VF SAND W/ SOME SILT | 10.0' - 10.66' |
| -11.0 | | | | | 0.2 | V. MOIST OLIVE VF SAND AND SILT, SLIGHTLY STICKY | 10.66' - 11.0' |
| | | | | | 0.0 | V MOIST, OLIVE SILT, TRACE VF SAND | 11.0' - 12.0' |
| -12.0 | | SS-5 (12-14') | 1-1-1-3 | 1.5' | 0.0 | WET GRAY-BROWN SAND & VF SAND, TRACE SILT | 12.0' - 12.66' |
| -13.0 | | | | | 0.0 | V MOIST, LIGHT BROWN SILT W/ SOME VF SAND | 12.66' - 13.0' |
| | | | | | 0.0 | WET, BROWN SAND & FINE SAND, LOOSE | 13.0' - 13.5' |
| -14.0 | | | | | | | SET WELL @ 12.0' |
| -15.0 | | | | | | | EOB 14.0' |

Attachment 2

**Laboratory Chemical Analytical Results:
May 11, 1999 Groundwater Sampling Event
Monitoring Wells MW-1, MW-2, & MW-3**

- **TPH by Modified EPA Method 8015**
- **EPA Method 8021B Compounds by EPA Method 8260**



ENDYNE, INC.

Received 5/27/99

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

REPORT OF LABORATORY ANALYSIS

CLIENT: KSK GeoEnvironmental Services, Inc.

ORDER ID: 2304

PROJECT NAME: Goodards Transport #99011

REF.#: 138,281 - 138,283, 138287

REPORT DATE: May 24, 1999

DATE SAMPLED: May 11, 1999

Enclosed please find the results of the analyses performed for the samples referenced on the attached chain of custody. Chain of custody indicated sample preservation with HCl.

All samples were prepared and analyzed by requirements outlined in the referenced method and within the specified holding times. All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced method. Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits.

Individual sample performance was monitored by the addition of surrogate analytes to each sample. All surrogate recovery data was determined to be within laboratory QA/QC guidelines unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.

Laboratory Director

enclosures



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

EPA METHOD 8021B--PURGEABLE AROMATICS

CLIENT: KSK GeoEnvironmental Services, Inc.

DATE RECEIVED: May 12, 1999

PROJECT NAME: Goodards Transportation/99011

REPORT DATE: May 24, 1999

CLIENT PROJ. #: 99011

ORDER ID: 2304

| | | | | | |
|-------------------------|--------------|--------------|--------------|--------------|--|
| Ref. #: | 138,281 | 138,282 | 138,283 | 138,287 | |
| Site: | MW-1 | MW-2 | MW-3 | Field Blank | |
| Date Sampled: | 5/11/99 | 5/11/99 | 5/11/99 | 5/11/99 | |
| Time Sampled: | 9:15 | 9:30 | 9:45 | 10:00 | |
| Sampler: | JR | JR | JR | JR | |
| Date Analyzed: | 5/17/99 | 5/17/99 | 5/18/99 | 5/18/99 | |
| UIP Count: | 0 | >10 | >10 | 0 | |
| Dil. Factor (%): | 100 | 100 | 100 | 100 | |
| Surr % Rec. (%): | 94 | 96 | 96 | 89 | |
| Parameter | Conc. (ug/L) | Conc. (ug/L) | Conc. (ug/L) | Conc. (ug/L) | |
| MTBE | <10 | <10 | <10 | <10 | |
| Benzene | <1 | <1 | <1 | <1 | |
| Toluene | <1 | <1 | <1 | <1 | |
| Ethylbenzene | <1 | TBQ <1 | TBQ <1 | <1 | |
| Xylenes | <1 | TBQ <1 | TBQ <1 | <1 | |
| 1,3,5 Trimethyl Benzene | <1 | <1 | <1 | <1 | |
| 1,2,4 Trimethyl Benzene | <1 | 1,1 | TBQ <1 | <1 | |
| Naphthalene | <1 | TBQ <1 | TBQ <1 | <1 | |

Note: UIP = Unidentified Peaks TBQ = Trace Below Quantitation NI = Not Indicated



ENDYNE, INC.

Laboratory Services

32 James Brown Drive
Williston, Vermont 05495
(802) 879-4333
FAX 879-7103

LABORATORY REPORT

CLIENT: KSK GeoEnvironmental Services, Inc.

ORDER ID: 2304

PROJECT: Goodards Transportation/99011

DATE RECEIVED: May 12, 1999

REPORT DATE: May 25, 1999

Enclosed please find the results of the analyses performed, for the samples referenced on the attached chain of custody. Different groups of analyses may be reported under separate cover.

All samples were prepared and analyzed by requirements outlined in the referenced methods and within the specified holding times.

All instrumentation was calibrated with the appropriate frequency and verified by the requirements outlined in the referenced methods.

Blank contamination was not observed at levels affecting the analytical results.

Analytical method precision and accuracy was monitored by laboratory control standards which included matrix spike, duplicate and quality control analyses. These standards were determined to be within established laboratory method acceptance limits, unless otherwise noted.

Reviewed by,

Harry B. Locker, Ph.D.

Laboratory Director

enclosures



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LABORATORY REPORT

CLIENT: KSK GeoEnvironmental Services, Inc.

ORDER ID: 2304

PROJECT: Goodards Transportation/99011

DATE RECEIVED: May 12, 1999

REPORT DATE: May 25, 1999

SAMPLER: JR

ANALYST: 820

Ref. Number: 138284

Site: MW-1

Date Sampled: May 11, 1999

Time: 9:20 AM

| <u>Parameter</u> | <u>Result</u> | <u>Unit</u> | <u>Method</u> | <u>Analysis Date</u> |
|------------------|---------------|-------------|---------------|----------------------|
| TPH 8015 DRO | < 0.40 | mg/L | SW 8015B | 5/21/99 |

Ref. Number: 138285

Site: MW-2

Date Sampled: May 11, 1999

Time: 9:35 AM

| <u>Parameter</u> | <u>Result</u> | <u>Unit</u> | <u>Method</u> | <u>Analysis Date</u> |
|------------------|---------------|-------------|---------------|----------------------|
| TPH 8015 DRO | 0.49 | mg/L | SW 8015B | 5/21/99 |

Ref. Number: 138286

Site: MW-3

Date Sampled: May 11, 1999

Time: 9:50 AM

| <u>Parameter</u> | <u>Result</u> | <u>Unit</u> | <u>Method</u> | <u>Analysis Date</u> |
|------------------|---------------|-------------|---------------|----------------------|
| TPH 8015 DRO | < 0.40 | mg/L | SW 8015B | 5/21/99 |



CHAIN-OF-CUSTODY RECORD

207

31600

| | | |
|--|---|---------------------------------------|
| Project Name: <i>GOODAARD'S TRANSPORTATION</i> | Reporting Address: <i>KSK Geo Environmental</i> | Billing Address: <i>KSK GEOS</i> |
| Site Location: <i>CASTLETON VERMONT</i> | <i>164 Osgood Hill, Essex VT 05452</i> | <i>164 Osgood Hill Essex VT 05452</i> |
| Endyne Project Number: <i>2304</i> | Company: <i>KSK GEOS</i> | Sampler Name: <i>John Remington</i> |
| | Contact Name/Phone #: <i>802 878-1620</i> | Phone #: <i>802-878-1620</i> |

[illegible]

| | | |
|--|--|-------------------------------|
| Relinquished by: Signature <i>John C. Bonney</i> | Received by: Signature <i>Jason Howard</i> | Date/Time <i>5/12/99 8 AM</i> |
| Relinquished by: Signature | Received by: Signature | Date/Time |

New York State Project: Yes No X *Kst 6005 Pm 99011* Requested Analyses

[illegible]